CLAIMS

1.   An application development system for a medical imaging system, which comprises:

a component library for storing components written in an object-oriented programming language, wherein one or more component includes at least one connection point for receiving an input or providing an output and wherein each component provides a predefined function; and

a graphic building area, wherein a user selectively moves components from the component library to the graphic building area and graphically links at least one connection point from a selected component to a connection point of another of the selected components, the graphical link providing a software reference to each of the selected components to define an executable application; and

a component for serializing and downloading the executable application to the medical imaging system.

2.   The system as recited in claim 1 in which the components are displayed as icons.

3.   The system as recited in claim 1, further comprising a container for storing one or more components in a hierarchical relationship.

4.   The system as recited in claim 3 in which the container comprises an icon in the graphic building area.

5.   The system as recited in claim 2 which includes a property display which enables a user to verify the properties of the component icon by selecting the icon with an input device.

6.   The system as recited in claim 5 in which relationships between the container and the components are displayed with graphical links.

7.   The system as recited in claim 6 in which the connection points of the components are displayed as icons linked to the components.

8.   The system as recited in claim 1 in which the object-oriented programming language is Java™ and the medical imaging system is programmed to translate the executable application to at least one of a C or a C++ program for real-time execution.

9.   The system as recited in claim 1 in which the components include a serialization component, the serialization component allowing a user to transfer code from the application development system to an application server.

10.   The system as recited in claim 1 wherein the component library further comprises an external communications link for receiving components and applications transmitted from an external central processing unit.

11.   The system as recited in claim 10, wherein the external communications link comprises an internet link.

12.   The system as recited in claim 10 wherein the external communications link comprises an ethernet link.

13.   A system for producing an application program for a magnetic resonance imaging system, which comprises:

a memory for storing a library comprising components written in an object-oriented programming language;

5   a workstation having a display, an input device and a processor programmed to perform application development functions, the application development program including:

a graphical building area for displaying icons representing components in the component library and responsive to directions from a
10   user entered through the input device to select graphically link icons to assemble the components ; and for persisting the selected components to form an application program.

14.   The system as recited in claim 13 in which the persistence is perfor

med using a serialization mechanism which stores the application program.

15. The system as recited in claim 13 in which the icons in the graphical building area include a property area, the property area being activated by the input device to display properties associated with the selected component in the properties area.

16. The system as recited in claim 15 in which the application development program also includes a property editor which enables a user to input data through the input device to change property values of a component.

5   17. A method for providing off-line programming of applications for a medical imaging system, the method comprising the following steps:

storing a library of components and a graphical applications development system on a development computer;

storing the library of components and the graphical applications
10   development system in the medical imaging system;

graphically creating an application program or application program segment on the development computer;

persisting the application program;

transmitting the application program from the computer to the
15   medical imaging system through a communications link.

18. The method as defined in claim 17, wherein the step of transmitting comprises transmitting compressed data over an internet link.

-32-

19.   The method as defined in claim 17, further comprising the step of downloading the application to one or more application processing boards in the medical imaging system for execution.

20.   The method as defined in claim 19, further comprising the step of and translating the application program to a low level programming language for execution.